DIGI®
When Accuracy Counts

DI-10

Check Weighing Scale

Service Manual

RICE LAKE WEIGHING SYSTEMS
Industrial Solutions on a Global Scale®

ISO 9001 REGISTERED

73355

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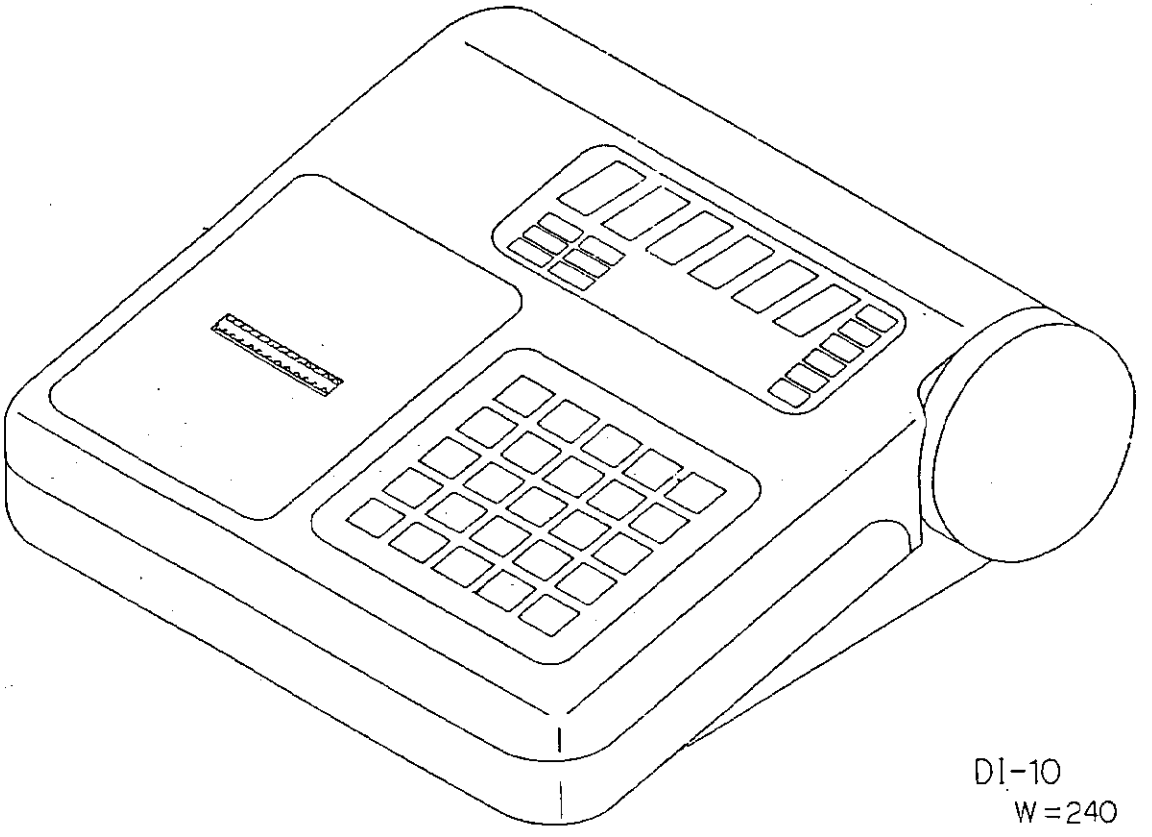
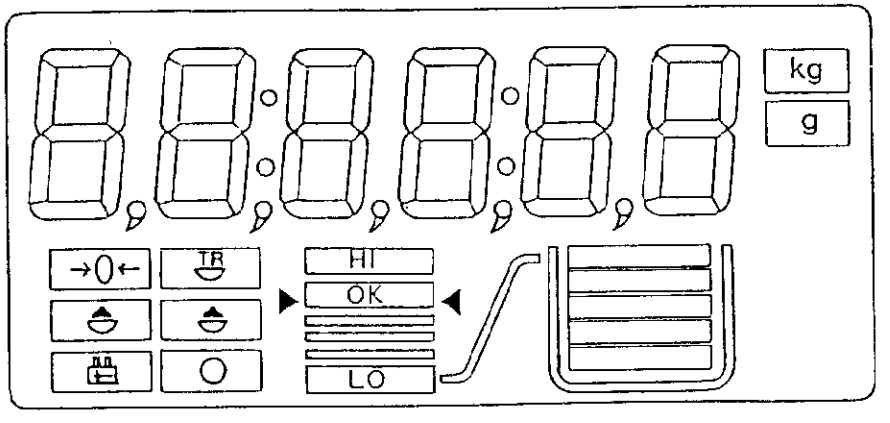
1. EXTERNAL VIEW



DI-10
W=240
D=260
H= 92 (mm)

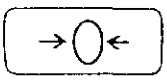
2.DISPLAY & KEYS.

2-1.Display



* Weight value is displayed loaded on the scale.
* Weighing unit, sign lamps and filling graphic for set pint are displayed.

2-2.Sign lamps



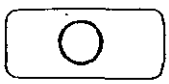
Zero lamp : ON, when display is true zero.

Tare lamp : ON, when tare is subtracted.

Net lamp : ON, when net weight is displayed.

Gross lamp : ON, when gross weight is displayed.

BATT. lamp : ON, when battery run out.



W.S lamp : ON, when weight is in stable condition.

HI lamp : ON, when weight value reached to "HI" set point programmed.

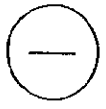
OK lamp : ON, when weight value reached to "OK" set point programmed.

LO lamp : ON, when weight value reached to "LO" set point programmed.

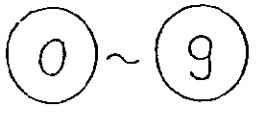
2-3. Keys

Total key : Use for total weight call and print out. Use for weight data print out without addition.

Plus key : Use for weight data addition and print out.



Minus key : Use for weight data subtraction and print out.

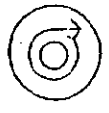


Numeric key : Use for data entry.

ON/OFF key : Display ON/OFF key.(Not for main power.)

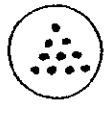
Mode key : Weighing conversion key.

NET/GROSS key : Display change for NET and GROSS.



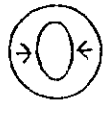
Feed key : Paper feed key.(In case of PRINTER connection)

Set point key : Set point programming for "HI","OK" and "LO".



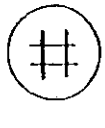
Sample key : Use for number of sample entry on counting mode.

Tare key : Use for tare reduction.



Re-zero key : Weight display re-zeroing.

Clear key : Use for data clear.

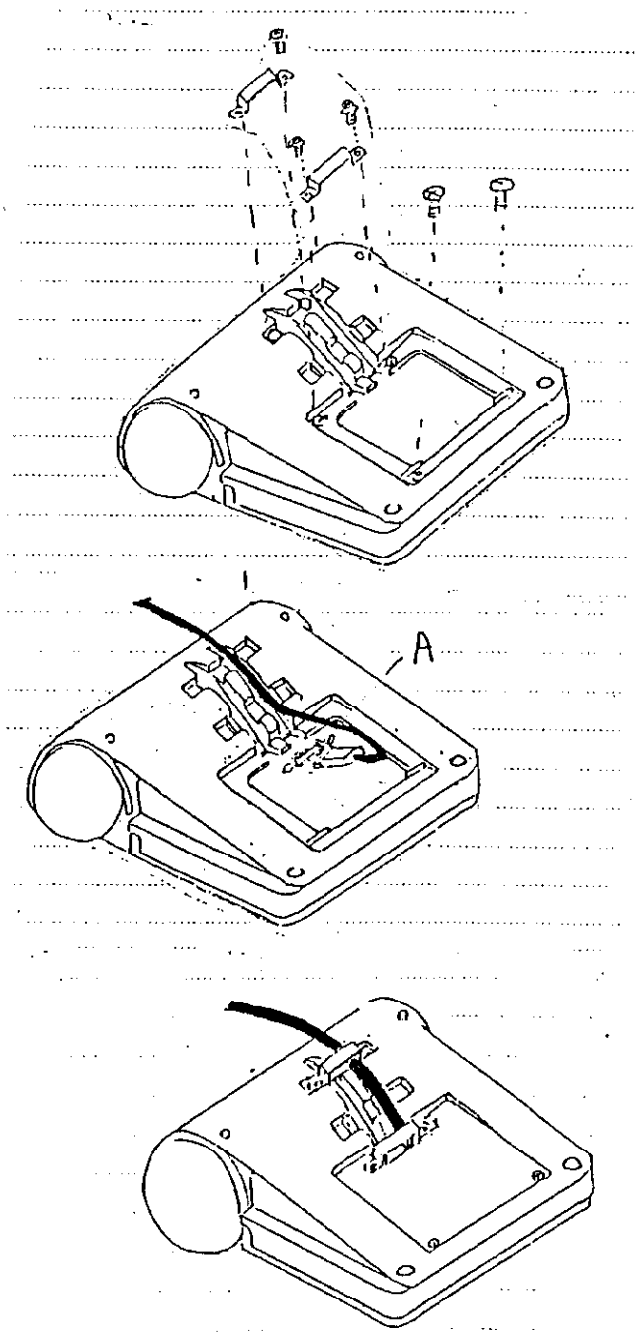


Code key : Use for programmed code number read out.

3.SET UP

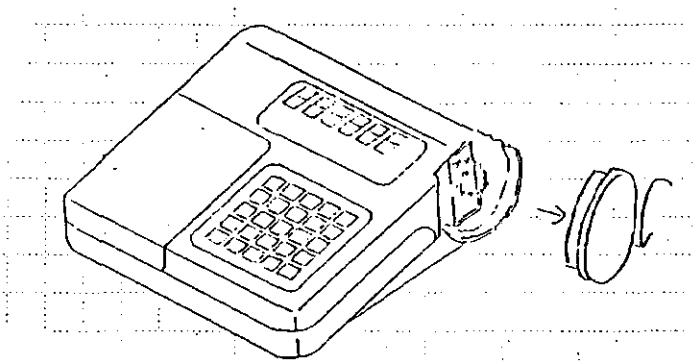
* Disk top type

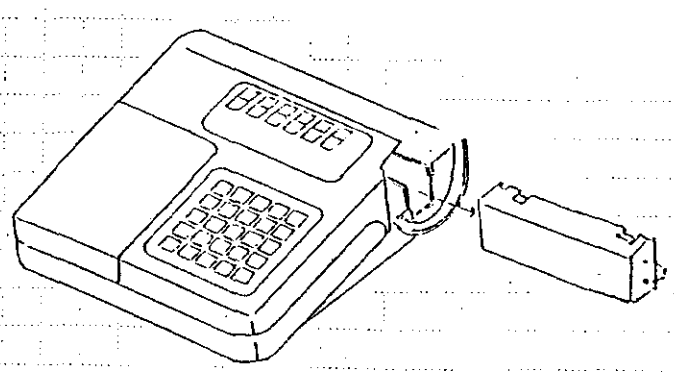
1.Put display side on the soft cloth or similar.
2.Remove rear lid and brackets by 6 screws.
3.Fix the cable to connector A.
4.Re- mount the rear lid and brackects.

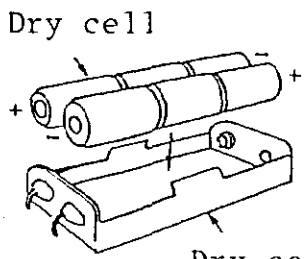


* How to set dry cells.

1.Remove the right side cover.
2.Remove the dry cell box.
3.Put the dry cell in the box. (6 pcs.)
    (Please pay attention to the polarity of the dry cells)
4.Re-mount the dry cell box.







4. SPECIFICATION

MODEL SPEC.

* Power source	: D.C 12V 0.5A (Ac/DC adaptor) D.C 1.5V x 6 pcs. (Dry battery)
* Operating temperature	: -10 ... +40°C
* Operating humidity	: 15 ... 85% RH.
* Power consumption	: 1 w/h.

ANALOG SPEC

* Input sensitivity	: 0.5mV/V to 4mV/V
* Zero adj. range	: -6 mV ... 30 mV.
* L/C applied voltage	: DC 12 V.
* Temp. characteristic	: ZERO ...±(0.2μV ± 8ppm of ZERO)/°C SPAN ...± 8 ppm/°C
* Speed of A/D conversion	: 8 or 16 times/sec. (selectable)
* Non linearity	: 0.01 %

DISPLAY SPEC.

* Weight display	: 6 digits.
* Tare	: 6 digits.
* Set point 1 (LO)	: 6 digits.
* Set point 2 (OK)	: 6 digits.
* Set point 3 (HI)	: 6 digits.
* Display total.	: 6 digits.
* Weighing unit	: 4 kinds "g","kg","lbs","oz" & "dwt"
* Sign lamps	: 9 kinds "ZERO","TARE","NET","GROSS" "BATT" "W.S","HI","OK","LO".
* Filling graphic	: 2 kinds rough and fine.

PRINTER SPEC.

* Printer	: Model 150 II 16 digits/line. 5 x 7 dots/chara.
* Print method	: Dot impact printer Ink ribbon cartridge.
* Items to be print	
	: Date(MM.DD.YY.)..... 2 digits each.
	: Time(HH.MM) ..... 2 digits each.
	: Code No. ..... 6 digits.
	: Weight ..... 6 digits.
	: Total weight ..... 6 digits.
	: No. of transaction... 4 digits.
	: Signs "+" .... Addition "-" .... Subtraction. "*" .... Non addition. "T" .... Total. "kg" .... kg mode. "lb" .... lb mode.
* Paper	: Normal paper is used.
* Print color	: Black or purple.

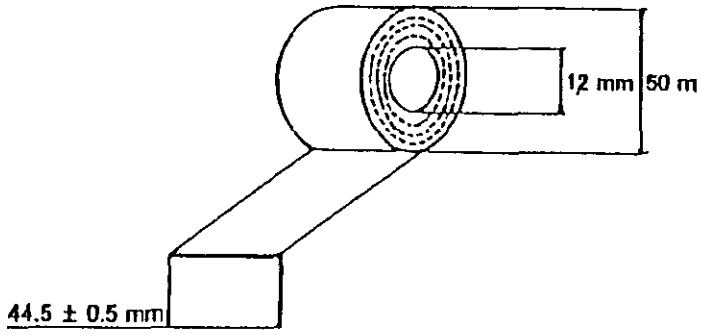
(depends on ink ribbon cartridge)

PRINT SAMPLE AND ROLL PAPER SPEC.

```
12.01'89  12:34

123456
   +  500.00 kg
123456
   +  500.00 kg
123456
   +  200.00 kg
123456
   -  100.00 kg

  2T 1100.00 kg
```



5. FEATURES.

* LCD graphic display is used for filling in indicator.
* Battery drive available. (about 100 to 200 hours)
* Up to 4 x 350Ω load cell can be drive in case AC/DC adaptor is used. (in the case of battery drive, only one 350Ω load cell can be drive.)
* 5 kinds of weighing mode kg,g,lbs,oz and dwt.
* One touch tare, Digital tare, Digital tare during weighing.
* Addition & subtraction.
* NET/GROSS conversion.
* Automatic zero tracking.
* Automatic print.
* Automatic calibration.
* Automatic power off.
* Data out put by RS-232C for external device. (Option)
* Set point data out put. (Option)
* Built in printer. (Option)
* Code No. printing.
* Date & time printing.
* Counting function.
* Programmable scale capacity and scale interval.
* Meets or exceeds the requirements of OIML class 3 in case of 1/3000 display resolution.

6 OPERATION INSTRUCTION

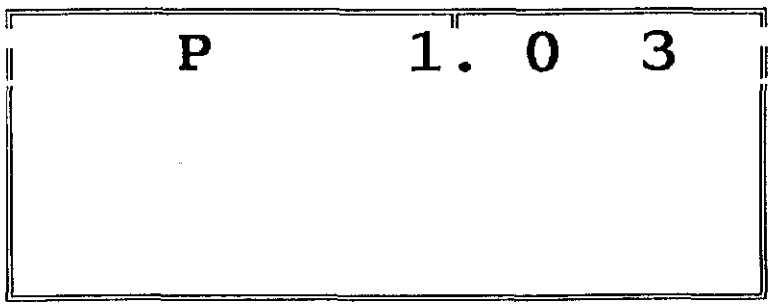
6-1. POWER ON

ZERO : Zero lamp
TARE : Tare lamp
NET : Net lamp
GROSS: Gross lamp
BATT.: Kg mode
W.S: Weight stable
HI : "HI" set point
OK : "OK" set point
LO : "LO" set point

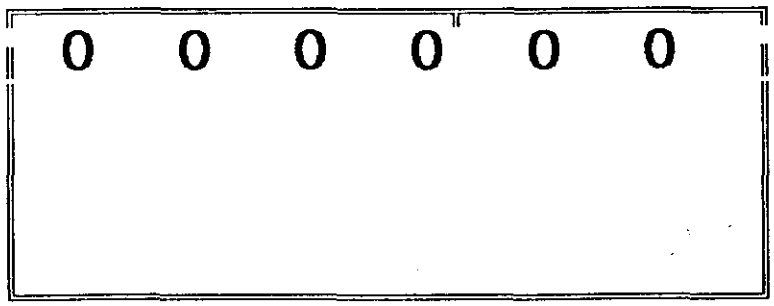
1.Set dry cell or AC/DC adaptor

then depress key.

* P 1.03 is program version number.

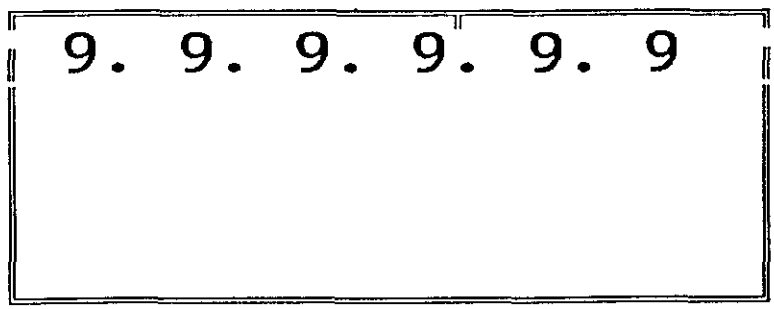


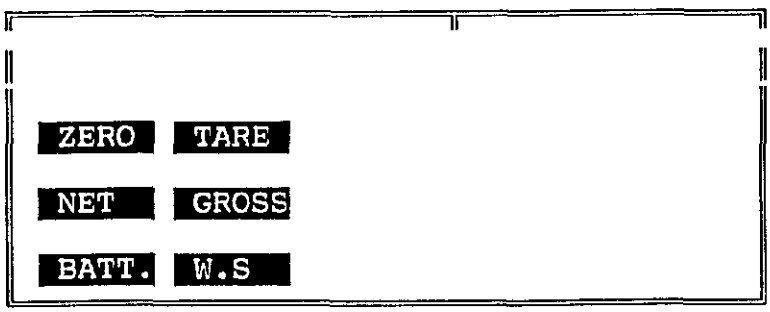
* Display scrolls 000000 to 999999 then all the sign lamps, weight unit and filling in graphic are displayed for checking purpose.

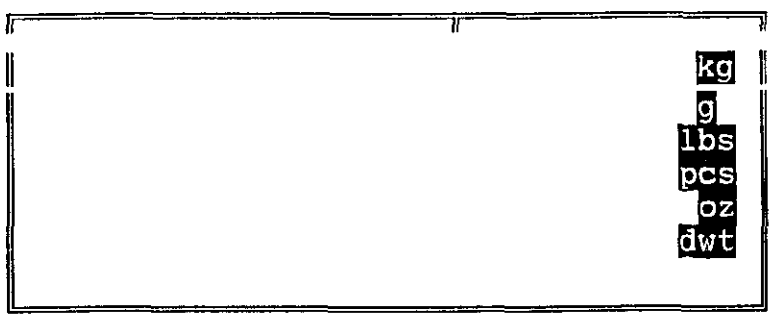


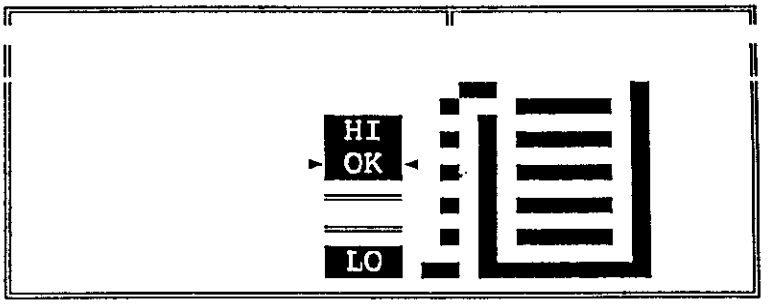
* If you want to stop the display scrolling, please

depress key.

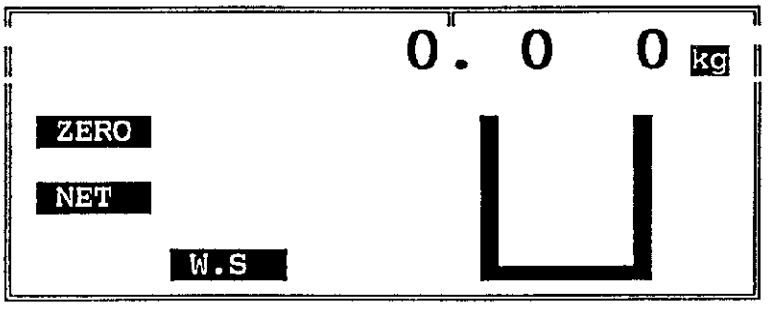








2.Ready to weigh.

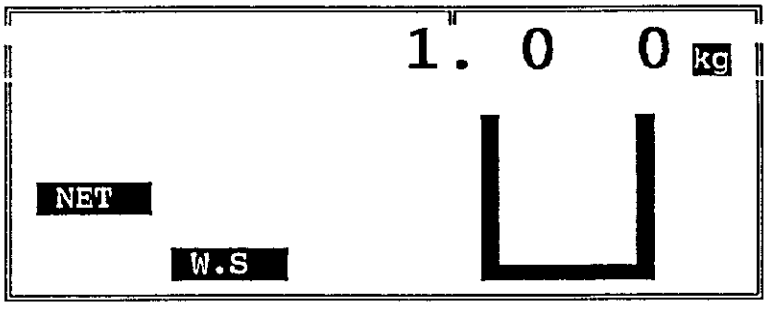


* After this page, all the descriptions are written based on 60.00kg/0.02kg scale.

6-2.ONE TOUCH TARE. (When unknown tare weight)

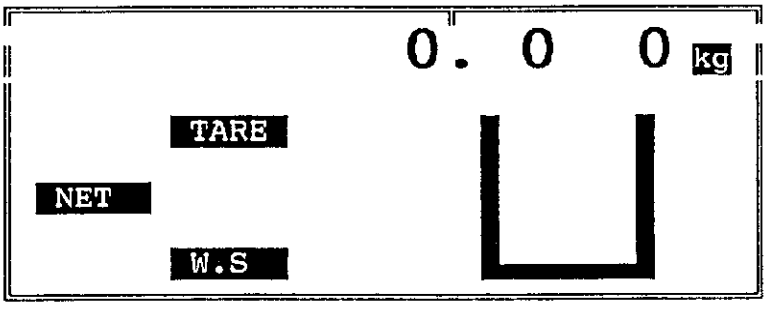
1.Place tare weight.

(Ex. 1.00 kg)



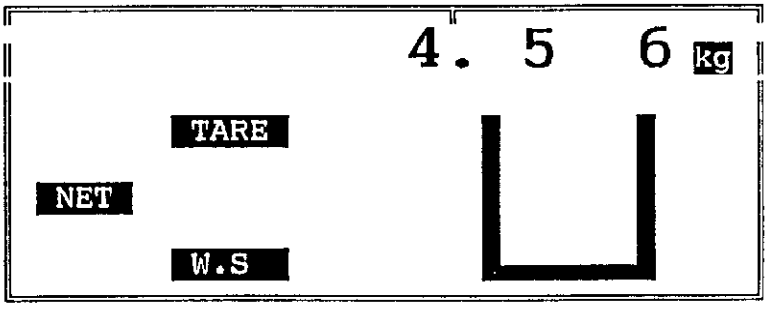
2.Depress (↔T) key.

*Ready to weigh.

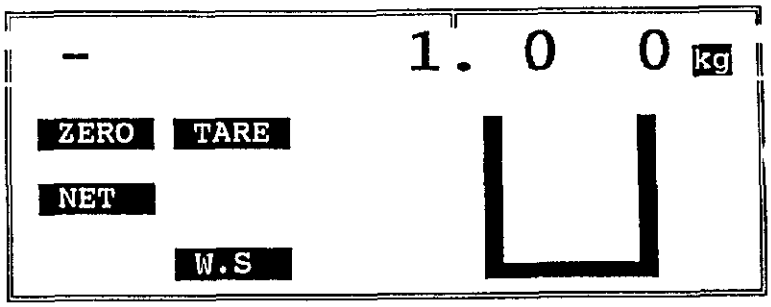


3.Place weight.

(Ex. 4.56 kg)

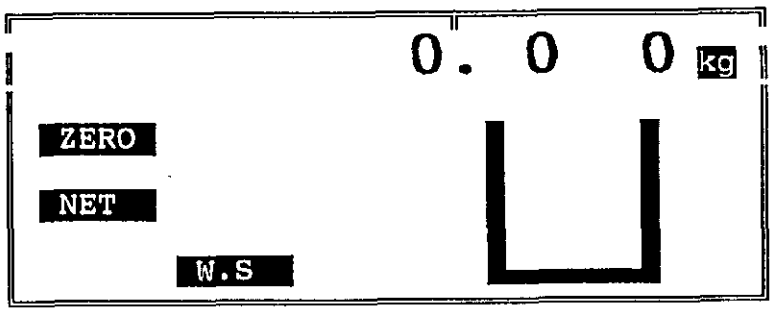


4.Remove tare & weight



5.Depress (→T) key.

*Tare weight is cleared.
*Ready for next operation.

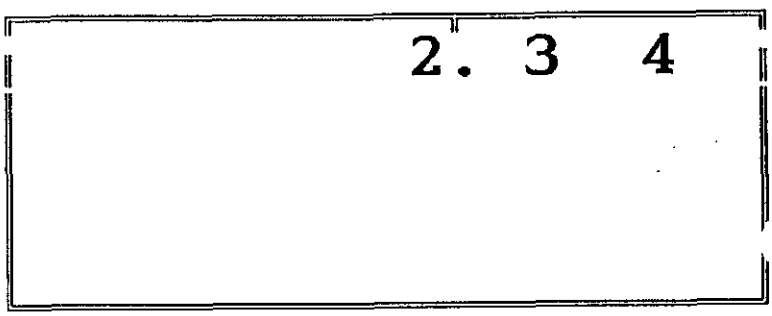


6-3.DIGITAL TARE. (When known tare weight)

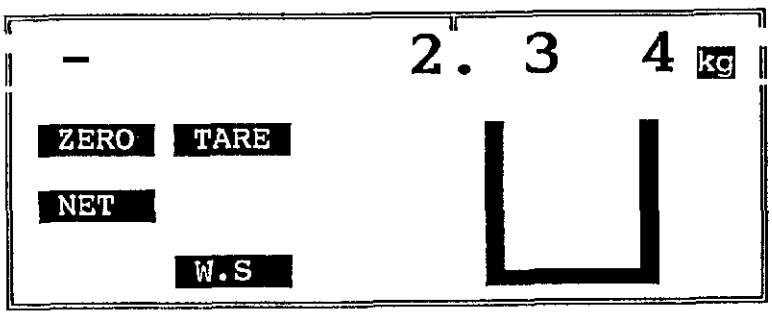
1.Enter tare value by numeric key.

(Ex. 2.34 kg)

Enter (2) (.) (3) (4)

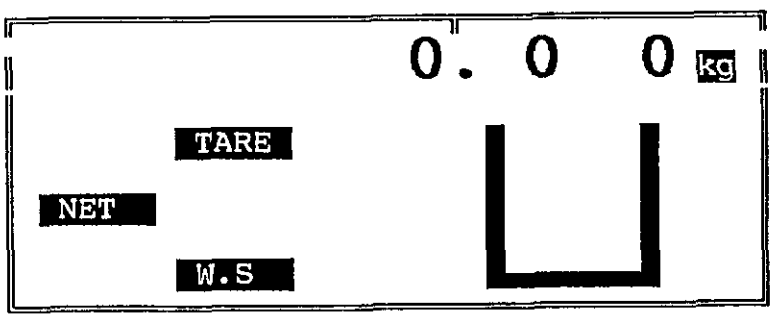


2.Depress (→T) key.



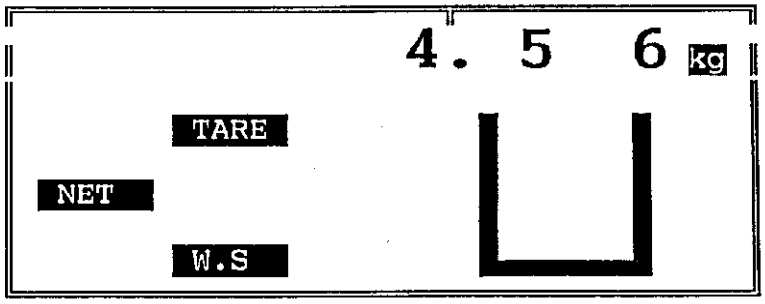
3.Place tare weight 2.34 kg.

*Ready to weigh.

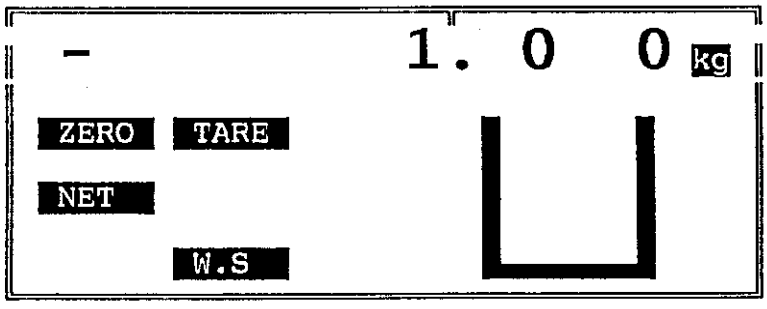


4.Place weight.

(Ex. 4.56 kg)

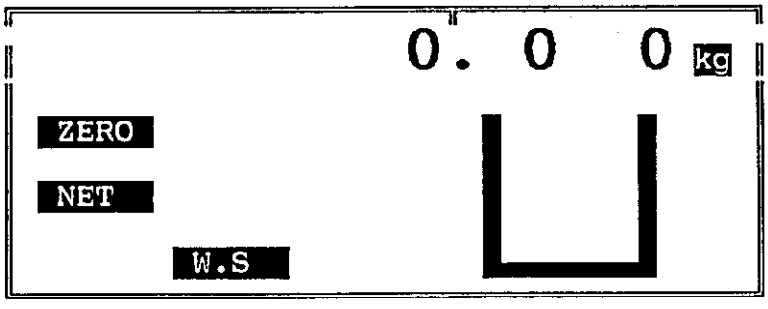


5.Remove tare & weight.



6.Depress key.

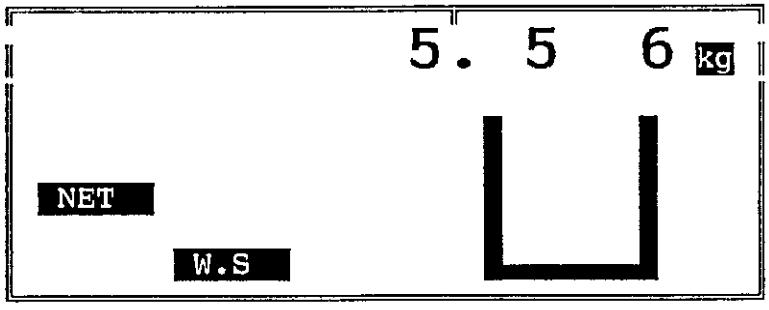
*Tare is cleared.



6-4.DIGITAL TARE DURING WEIGHING.

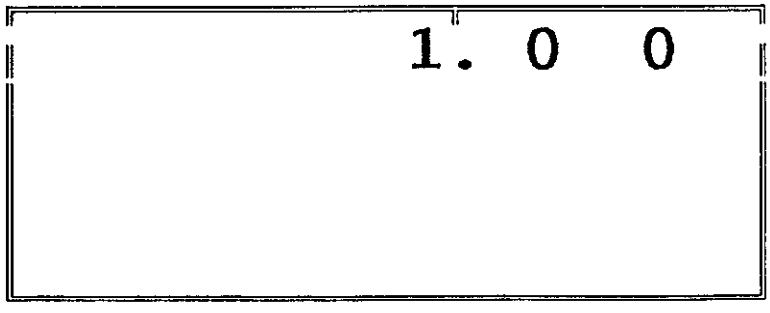
1.Place tare & weight.

tare : 1.00 kg
weight: 4.56 kg
total : 5.56 kg

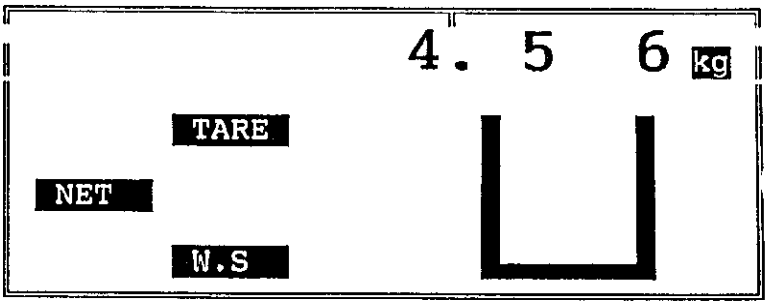


2.Enter tare value by numeric key.

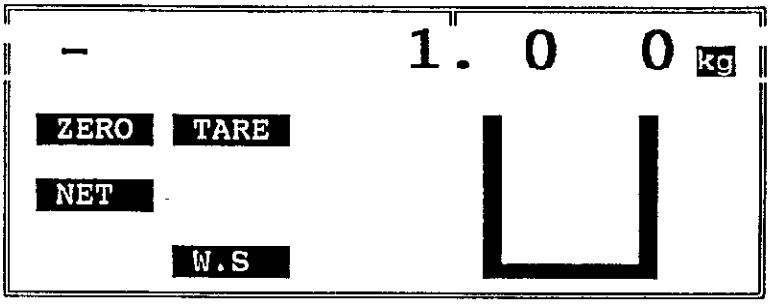
Enter 1 · 0 0



3.Depress (↔T) key.

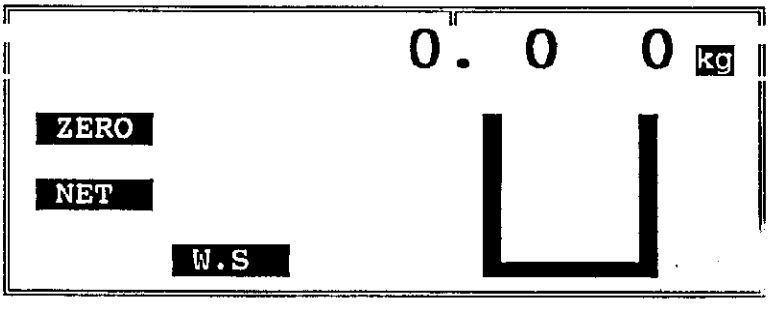


4.Remove tare & weight.



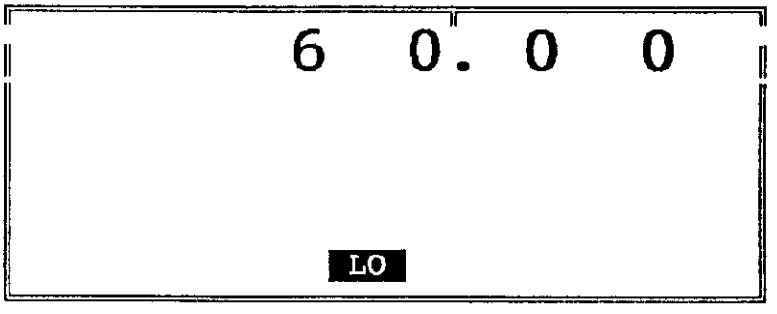
5.Depress (↔T) key.

*Tare is cleared.



6-5.SET POINT SETTING.

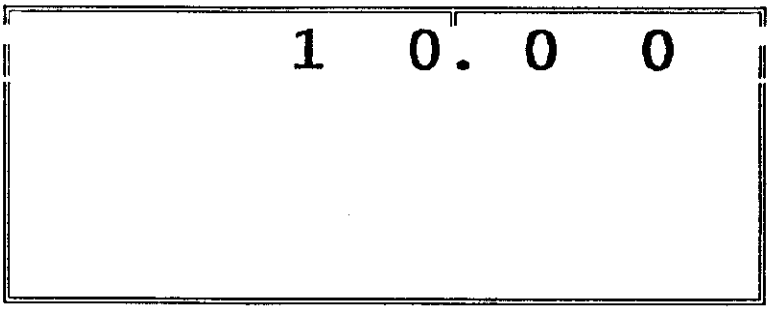
1.Depress (S) key.



*Scale capacity(60.00kg) is set automatically for "LO", "OK" & "HI" when no data.

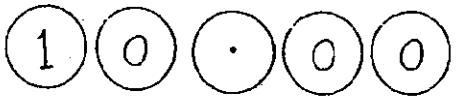
*See "NOTE" for the detail.

2.Enter set point for "LO".



(Ex. set point "LO"=10.00 kg)
set point "OK"=20.00 kg
set point "HI"=30.00 kg

Enter



3.Depress (S) key.

Enter set point for "OK".

Enter

(2) (0) (·) (0) (0)

4.Depress (S) key.

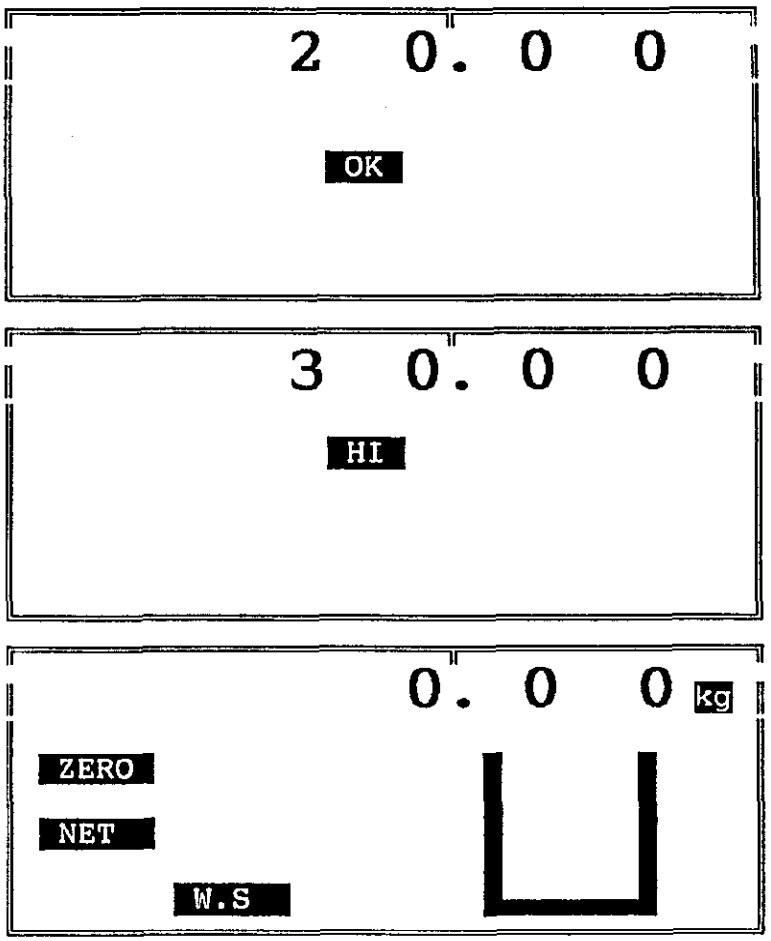
Enter set point for "HI".

Enter

(3) (0) (·) (0) (0)

5.Depress (S) key.

*Completed & ready to weigh.



NOTE : * The filling graphic will be as follows when same value are set to each set point.

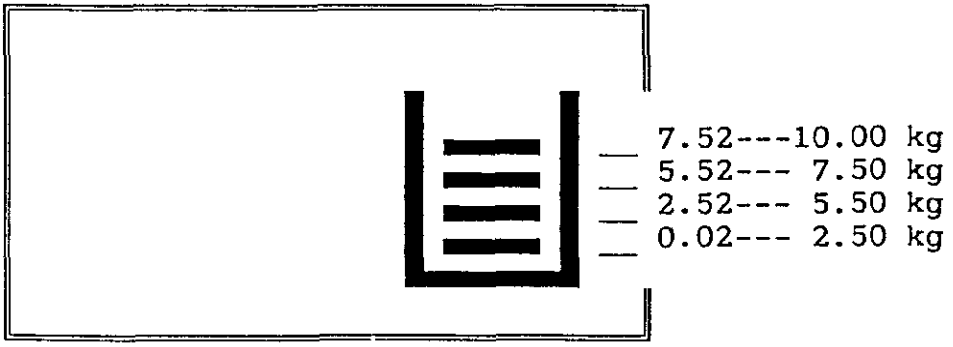
Ex.) 60.00 kg/0.02 kg. Set point "LO"="OK"="HI"=60.00 kg.

60.00 kg
----------=15 kg
4 step

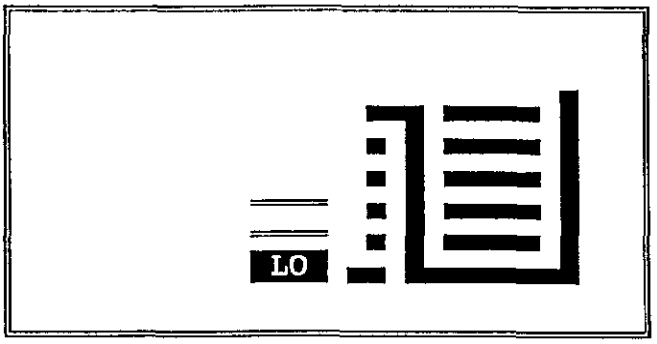
* The filling graphic will be as follows when different value are set to each set point.

Ex.) 60.00 kg/0.02 kg.
Set point "LO"=10.00 kg,"OK"=20.00 kg,"HI"=30.00 kg

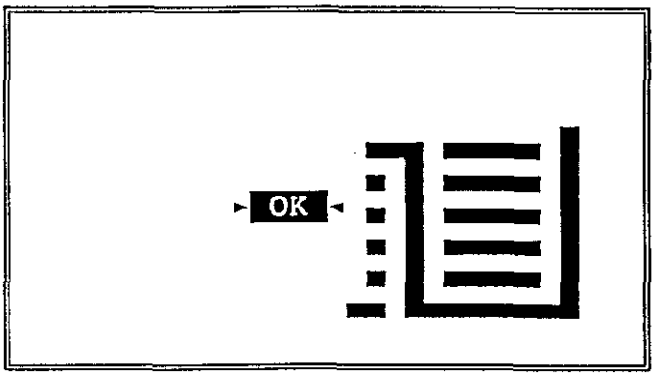
0.02 to 10.00 kg



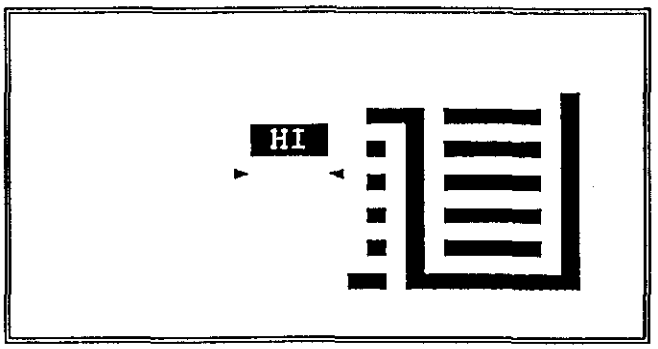
10.02 to 20.00 kg



20.02 to 30.00 kg



30.02 to CAPACITY

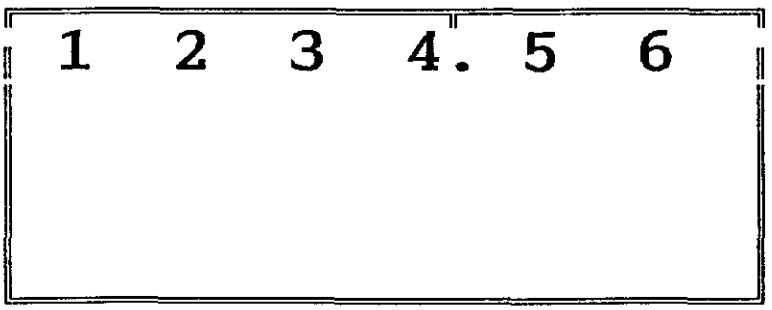


6-6.ADDITION & SUBTRACTION.

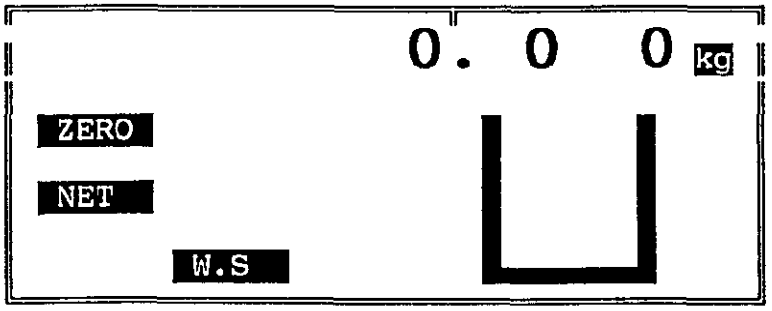
1.Enter Code No. by numeric key.

Ex. Code No.=123456

(1) (2) (3) (4) (5) (6)



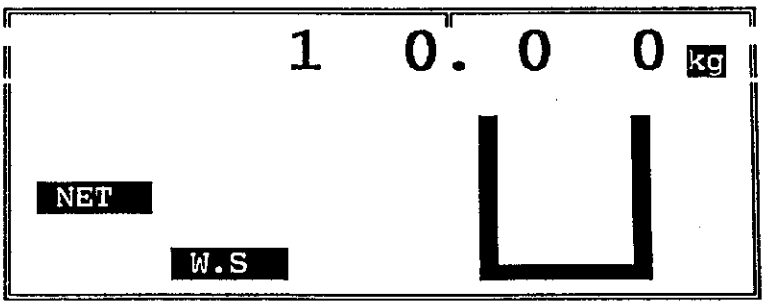
2.Depress (#) key.



3. Place weight then depress (+) key.

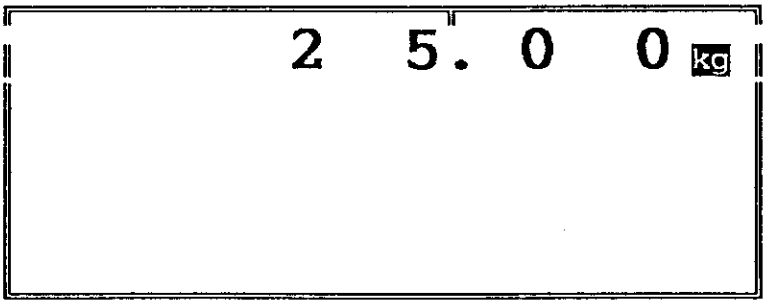
Ex. 10.00 kg

*Total weight appears and display flashes 4 times.

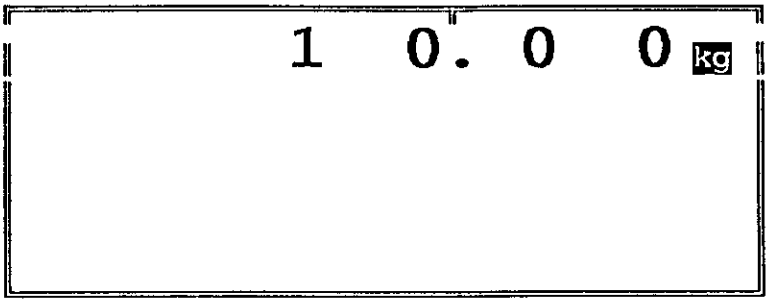


4. Remove 10.00 kg and place another weight then depress (+) key. Ex. 15.00 kg

*Total weight appears and display flashes 4 times.



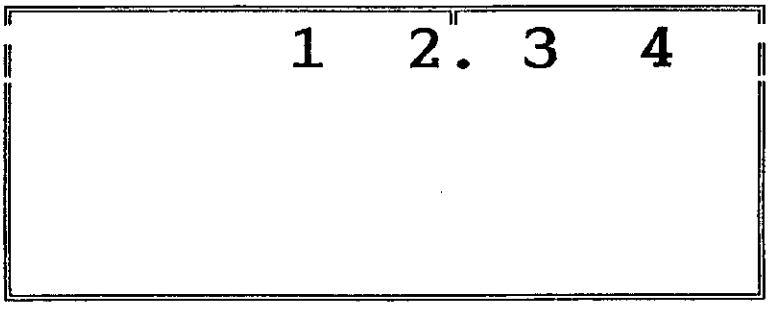
5. Depress (—) key for correction. (subtraction)



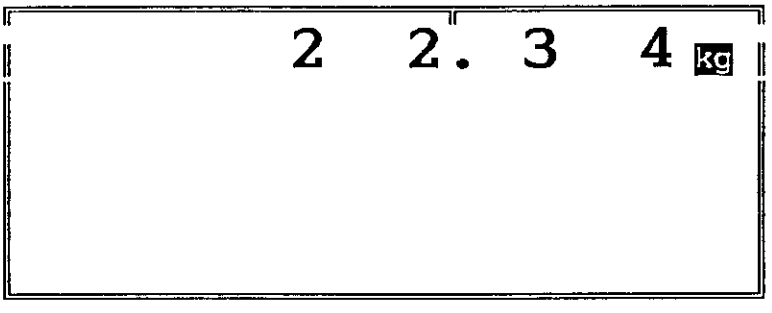
6. Remove weight, enter weight value if it is known weight.

Ex. 12.34 kg

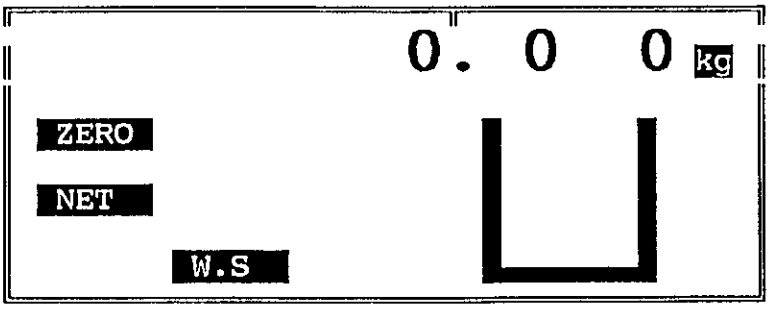
(1) (2) (·) (3) (4)



7. Depress (+) key for addition then depress (✳) key to call up total weight.



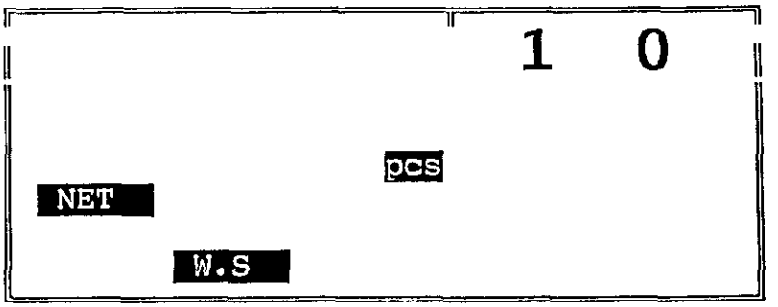
8. Depress (✳) key again to print out total weight.



6-7.COUNTING.

1.Place samples 10 pcs., then

depress key.



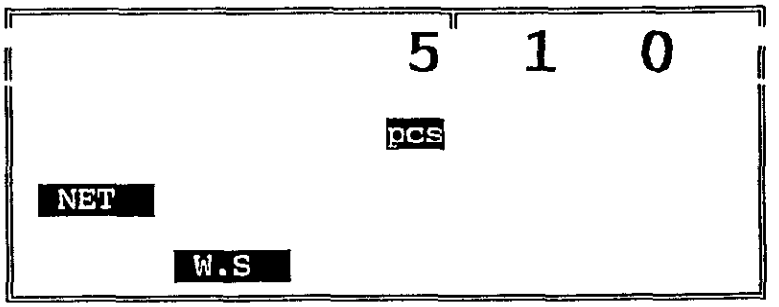
Ex. 10 pcs. sample = 0.10 kg

*If the sample weight is less than 0.1% of scale capacity, Add XX will be displayed. Please place XX more samples,

then depress key again. 60.00kg x 0.1% = 0.06 kg (60g)

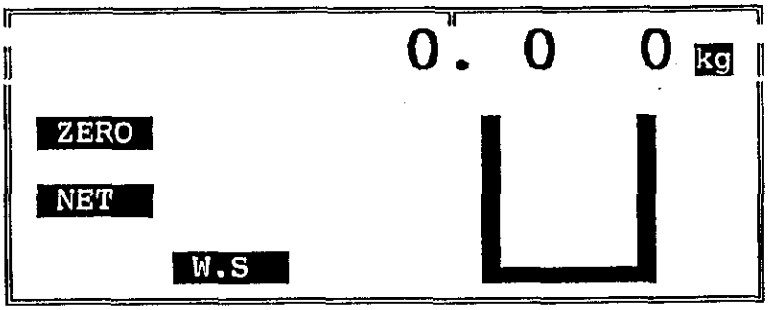
2.Place items to be count.

EX. 500 pcs.



3.Remove items and depress CL

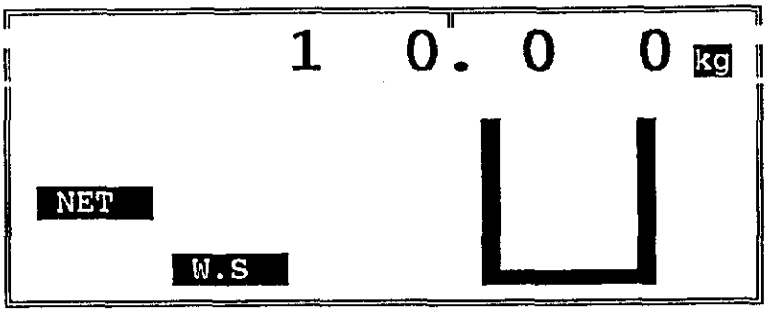
key to release counting mode.



6-8.NET/GROSS DISPLAY.

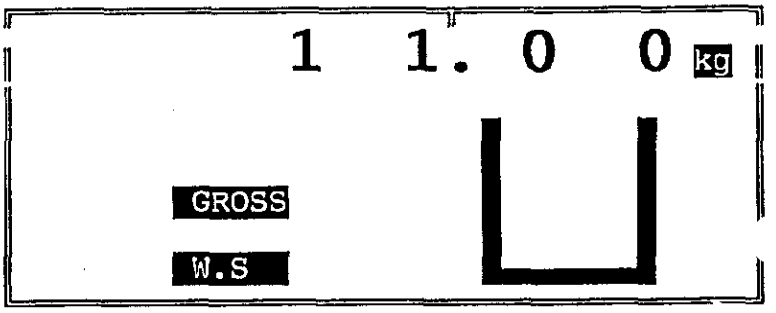
1.Subtract tare and place weight

Ex. tare = 1.00 kg
weight =10.00 kg

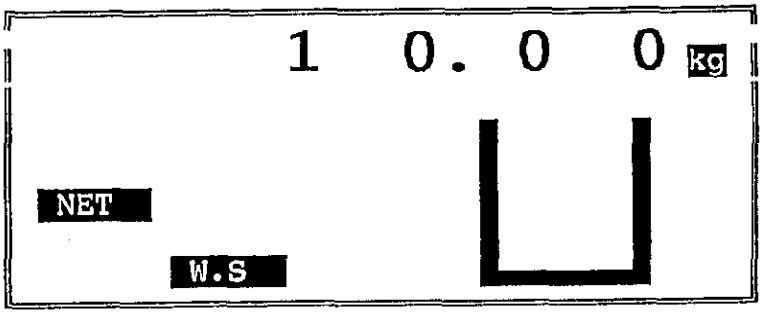


2.Depress key to indicate

Gross weight.

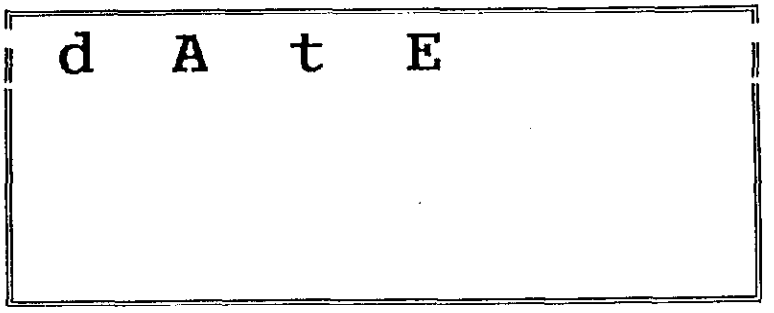


3.Depress key to indicate NET weight.



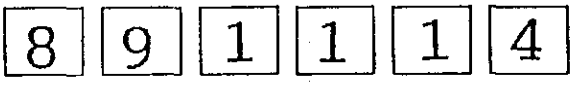
6-9 DATE & TIME SETTING.

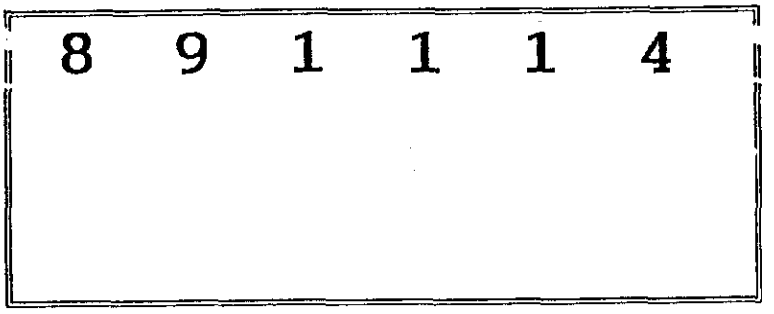
1.Depress and key at the same time.



2.Enter date by numeric key

Ex. 14.Nov.89

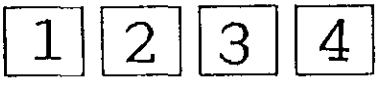


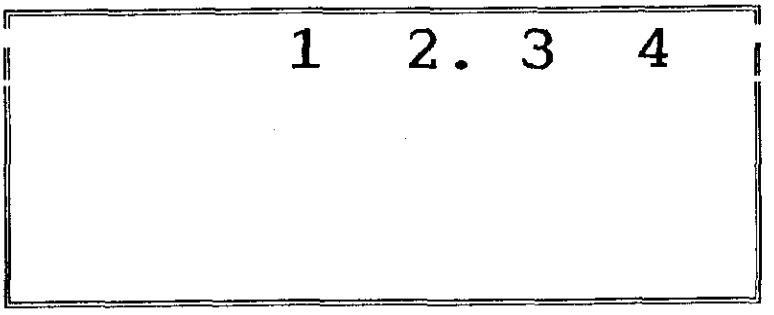


* Enter data in order of YY.MM.DD.
* Display flashes for confirmation.

3.Depress key then enter time by numeric key.

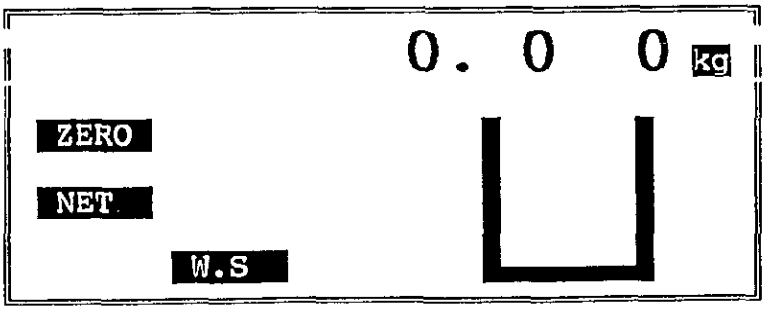
Ex. 12:34





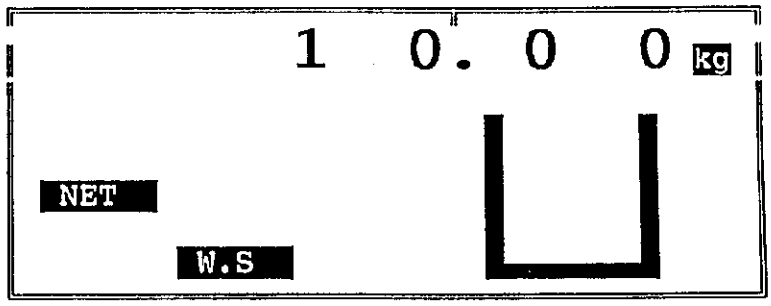
* 24 hours.
* Display flashes for confirmation.

4.Depress key.

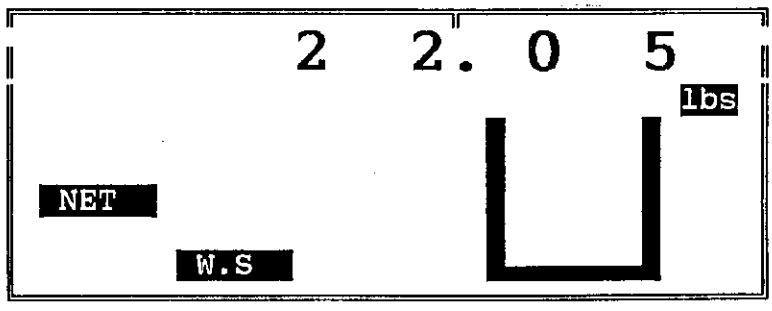


6-10. LB/KG CONVERSION.

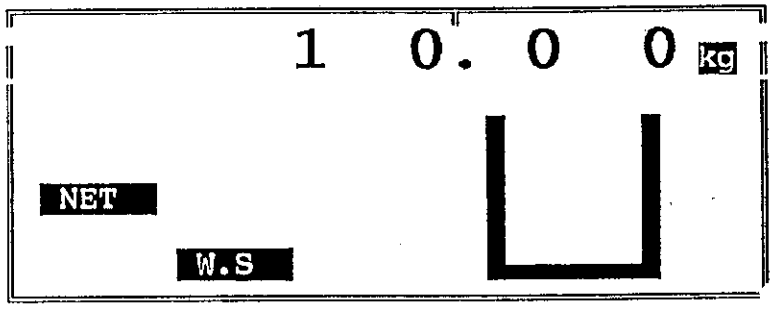
1. Place 10.00 kg weight.



2. Depress (M) key.



3. Depress (M) key.



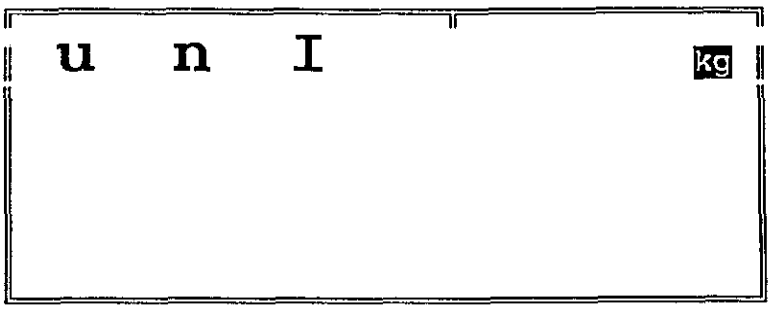
NOTE : Weighing conversion "lb" to "kg" or "kg" to "lb" are available.
Weighing conversion "g" to "oz","dwt" or vise versa are available.

7.CALIBRATION.

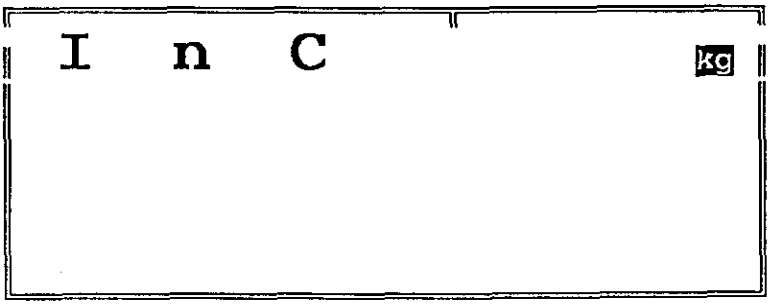
1.Depress 8715 while keep depressing (→0←) key.

* Select appropriate weighing unit "kg","g","lbs","oz" or "dwt" by (✳) key.

Ex. kg.



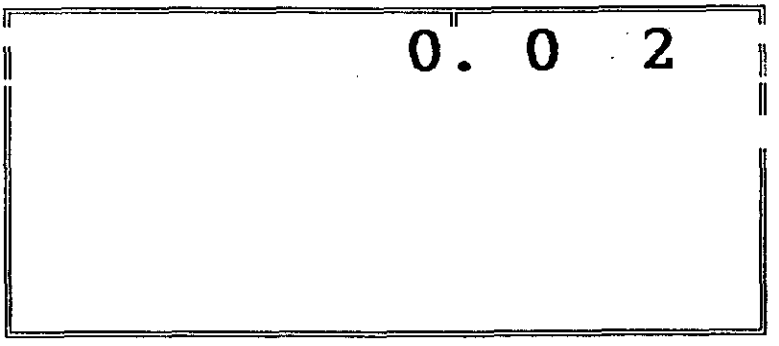
2.Depress (#) key.



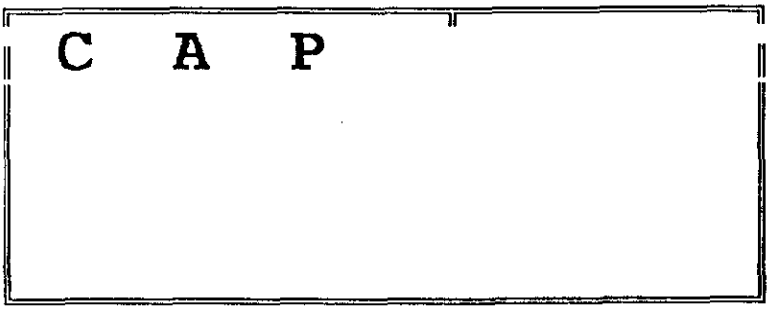
3.Enter scale interval (minimum graduation) by numeric key.

Ex. 0.02 kg

(0) (.) (0) (2)



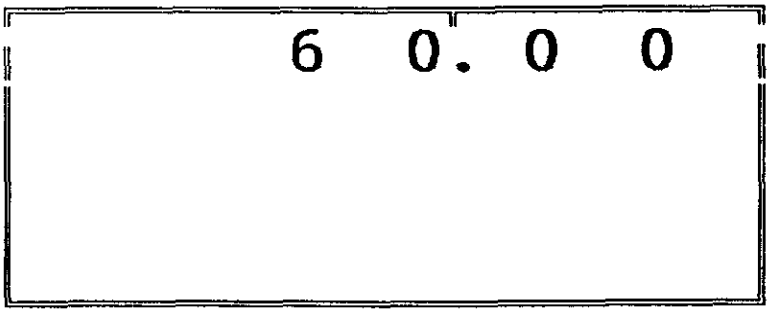
4.Depress (#) key.



5.Enter scale capacity by numeric key.

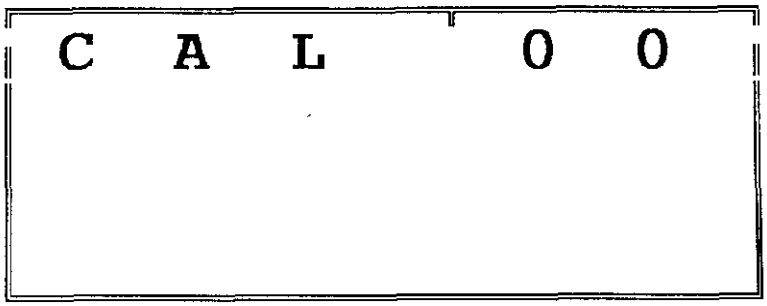
Ex. 60.00 kg

(6) (0) (.) (0) (0)



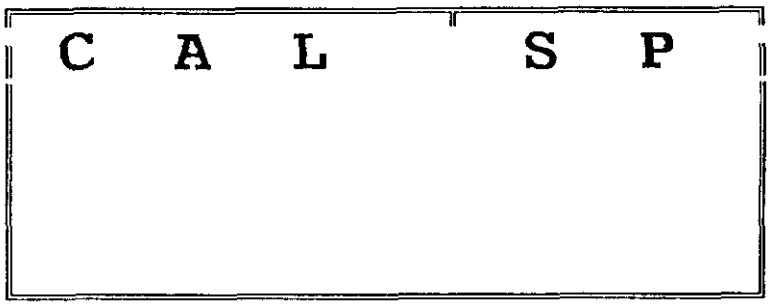
6.Depress (#) key. CAL is displayed, depress (#) key.

* Please make sure that nothing has been placed on the scale.

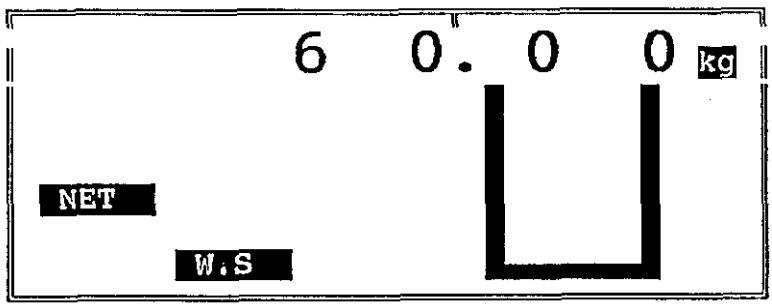


7.CAL SP is displayed. Place the weight and enter the value of the weight.
If it is capacity weight, simply depress (#) key.

* We recommend to use capacity weight for the calibration to have correct scale accuracy.



8.Completed.



► The scale capacity must be set within the following range.

$$\frac{\text{Scale capacity}}{\text{Min. graduation (scale interval)}} = 10000 \text{ or less.}$$

► For example, if the min. increment is "2", you can set the scale capacity up to the "20000". But the higher display resolution may result flickering display or in-correct weight display in some case.

► If you don't have the capacity weight for calibration, you can use any known weight in stead of capacity weight. (see item 7)

► The minimum graduation must be following value.

Ex. 1 ,2 , 5 , 10 ,20 , or 50.

8. SPEC LIST

1.There are 2 ways to access the specification changeover.

* Depress (1)(4)(1) while keep depressing (→0←) key.

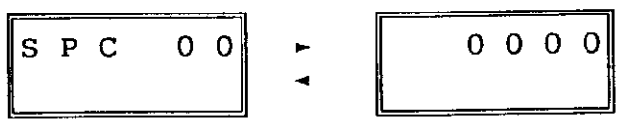
This is a specification changeover access code which are related with user's changeable function.
Spec.00 to 09 are available.

* Depress (1)(4)(2) while keep depressing (→0←) key.

This is a specification changeover access code which are related with the W & M regulation for each country.
Spec.10 to 19 are available.

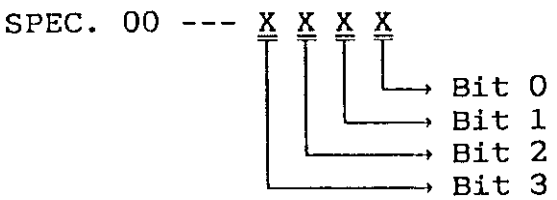
2.All the specification data consists of 4 digits binary code and some of them are available in combination with another spec. data in some case.

3.When above code is accessed, display shows spec No. (2 digits) and it's data (4 digits) reciprocally as shown below which are set at the factory when shipping.



Spec. No. Data of Spec. 00

4.Data construction and usable keys.



5.Useable keys.

(0) & (1) --- Data entry.(only (0) & (1) are available)

(*) ------- Skip Spec. No. & data set.

(—) ------- Skip back Spec. No. & data set.

(#) ------- Program end.

6.The spec. data marked below Spec. No. are standard spec. data when shipped.
"Not used" should be set to "0000" always.

FUNCTION TABLE OF SPEC. 141

SPEC. No.	Bit 3	Bit 2	Bit 1	Bit 0
SPEC. 00 0000		Set point func--tion. 0 : Yes 1 : No	Nega. weighing. 0 : Yes 1 : No	Printer connec--tion. 0 : No 1 : Yes
SPEC. 01 0110	Manual weight entry. 0 : Yes 1 : No	Time print. 0 : No 1 : Yes	Data out put. 0 : Continuous 1 : by key in	Serial I/F. 0 : No 1 : Yes
SPEC. 02 0000	Not used	Not used	Weighing unit change. 0 : Yes 1 : No	Automatic print 0 : No 1 : Yes
SPEC. 03 : 06	Not used	Not used	Not used	Not used
SPEC. 07 0001	Not used	Not used	Date order 00 : YY.MM.DD 01 : DD.MM.YY 10 : MM.DD.YY	YY --- Year MM --- Month DD --- Day
SPEC. 08 1100	Print Code No. 0 : No 1 : Yes	Filling display 0 : No 1 : Yes	Insufficient sample range. 00 : 0.1 % of scale capacity. 01 : 0.2 % of " " 10 : 0.0 % of " " 11 : 0.4 % of " "	
SPEC. 09 1010	Automatic power OFF timer. 0000 : Non 0001 : 1 min. 0010 : 2 min. 0011 : 3 min.	0100 : 4 min. 0101 : 5 min. 0110 : 6 min. 0111 : 7 min.	1000 : 8 min. 1001 : 9 min. 1010 :10 min. 1011 :11 min.	1100 : 12 min. 1101 : 13 min. 1110 : 14 min. 1111 : 16 min.

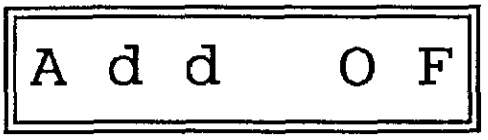
FUNCTION TABLE OF SPEC. 142

SPEC. No.	Bit 3	Bit 2	Bit 1	Bit 0
SPEC. 10 : 12	Not used	Not used	Not used	Not used
SPEC. 13 0000	Tare during zero tracking. 0 : Yes 1 : No	Re-zero during zero tracking. 0 : Yes 1 : No	Scale start range. 0 : ± 600 IR. 1 : ± 3000 IR.	Weighing unit (display/print) 0 : Yes 1 : No
SPEC. 14 0000	Manual tare clear. 0 : Yes 1 : No	Tare decrease. 0 : Yes 1 : No	Tare stack up. 0 : Yes 1 : No	Tare limit. 0 : 50 % of FS. 1 : 5 % of FS.
SPEC. 15 0000	Scale start range 200 IR. 0 : No 1 : Yes	When Net weight is below 0 0 : Minus sign 1 : Blank	When Gross wei-ght is below 0 0 : Minus sign 1 : Blank	Zero lamp range 0 :Gross 0±1/4d 1 :Net 0 ± 1/4d
SPEC. 16 0000	Auto Tare Clear 0 : No 0 : Yes	A.T.C condition 0 : Net 21 d. 0 : Net 1 d.	Digital tare. 0 : Yes 0 : No	Print limit. 0 : Below 0 d. 0 : Below 20 d.
SPEC. 17 0000	Decimal point. 0 : Comma 1 : Period	Net 20 d → 50 d 0 : No. 1 : Yes	Negative total. 0 : Yes 1 : No	Double print. 0 : Yes 1 : No
SPEC. 18 0000	Not used	Not used	Not used	Tare exchange. 0 : Yes 1 : No
SPEC. 19 1001	Sensitivity of the Load cell to be used. 0000 : 3.46 --- 4.00 mV/V 0001 : 3.00 --- 3.46 " 0010 : 2.59 --- 3.00 " 0011 : 2.55 --- 2.59 " 0100 : 1.95 --- 2.55 " 0101 : 1.69 --- 1.95 " 0110 : 1.46 --- 1.69 " 0111 : 1.27 --- 1.46 "		1000 : 1.09 --- 1.27 mV/V 1001 : 0.95 --- 1.09 " 1010 : 0.82 --- 0.95 " 1011 : 0.71 --- 0.82 " 1100 : 0.61 --- 0.71 " 1101 : 0.53 --- 0.61 " 1110 : 0.46 --- 0.53 " 1111 : 0.40 --- 0.46 "	

Note: IR. = Internal count.
FS. = Full scale

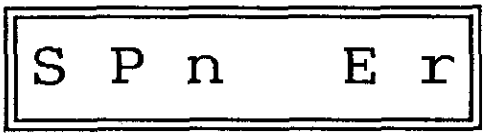
9. ERROR MESSAGE LIST

Following error message will be appeared when in-correct operation. is taken.



When accumulated weight total exceeded 6 digits.
When quantity displayed exceeded 6 digits.

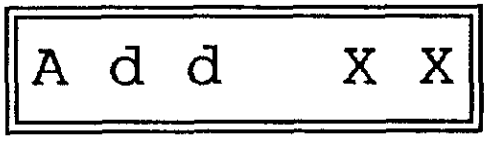
When displayed weight exceeded scale capacity.



When weight value entered during calibration operation, is not correct.

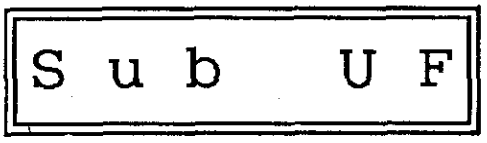
When zero calibration is not correct during calibration operation.
Please try zero calibration operation.

Same as above.
Please try Zero and Span calibration.



When sample weight was less than insufficient range.
Please place XX pcs.

When wrong set point value was entered.



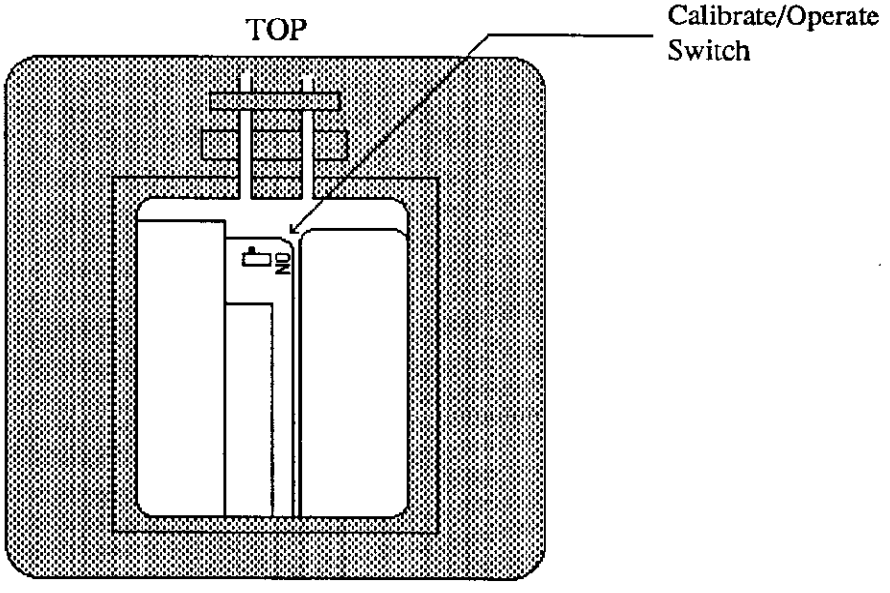
When total weight is minus.

NOTICE

To enter either the calibration or specification setting, the following procedure must be performed.

1. Remove the two screws and back panel (see illustration).

2. Locate the calibration switch, and move it to the left (as shown).



DI-10 Rear view, back panel off.

3. Perform the calibration or specification code setting as needed.

4. Be sure to move the switch to the right before placing the unit back in service, to prevent unauthorized access.

5. Replace seal(s).

DIGI GRAND STANDARD SPECIFICATIONS

REZERO 1-4-1 SPEC NO.	STD.SETTING	REZERO 1-4-2 SPEC NO.	STD.SETTING
00	0 0 0 0	10	0 0 0 0
01	0 0 0 0	11	0 0 0 0
02	0 0 0 0	12	0 0 0 0
03	0 0 0 0	13	0 0 0 0
04	0 0 0 0	14	0 0 0 0
05	0 0 0 0	15	0 0 0 0
06	0 0 0 0	16	0 0 0 0
07	0 0 0 1	17	0 0 0 0
08	1 1 0 0	18	0 0 0 0
09	1 0 1 0	19	1 0 0 1

DI-10 Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for one (1) year.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.
- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.
- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.
- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.
- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS'S SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of RLWS and the Buyer.

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